

**The Multi-University Reading, Mathematics and Science Initiative**  
**Learning Systems Institute, Florida State University**

**REQUEST FOR PROPOSALS**

**High Priority Research Projects in**  
**Reading, Mathematics, Science and Educational Leadership**

**Monday, May 16, 2005**

The Multi-University Reading, Mathematics and Science Initiative (MURMSI) is a statewide research and development project funded by the U.S. Department of Education. Planned as a five-year project, MURMSI is designed to measurably improve teaching and learning in reading, mathematics and science in Florida's K-12 schools with a special emphasis on students considered "at risk" due to economic or other conditions.

The Principal Investigator for this project is Laura Hassler, Ph.D., Director, FSU Learning Systems Institute and Associate Professor of Educational Leadership and Policy Studies.

Research projects solicited under this RFP will be funded by the third year grant award for the MURMSI project from the U.S. Department of Education, which is expected to arrive in June 2005. Contract awards are contingent upon receipt of this funding.

**The MURMSI project has three major components:**

1. Development of a high priority research agenda through a collaborative partnership and consensus-building process.
2. Funding of research projects at state universities. These projects must include K-12 partners.
3. Linking research and practice to improve application of findings in districts, schools and classrooms and to improve the timeliness and usefulness of research to K-12 practitioners.

**The purpose of the research agenda is three-fold:**

- To increase the relevance, usefulness, and application of university research to schools and schools districts in Florida by seeking broad input on areas of research that are most critical to stakeholders, particularly K-12 educators.
- To direct funding for MURMSI research projects to the highest priority educational issues. Each year, the most recent version of the research agenda is incorporated into the MURMSI request-for-proposals (RFP) issued to state universities in Florida.
- To help university faculty and graduate students develop grant proposals, design research studies, and select topics for dissertations and master's theses that will be of immediate value to educators in Florida.

During the first year of the project (2003-04), an initial research agenda was developed and further refined through two stakeholder meetings in Tallahassee and a review of national education agendas. Stakeholder representatives (50 people) included the groups below, primarily groups 1-3.

1. State university faculty from Colleges of Education and Colleges of Arts and Sciences
2. High level officials in reading, mathematics, science, and school improvement at the Florida Department of Education
3. Leaders from superintendent and principal associations in Florida
4. Educators in Florida's school districts

Four separate research agendas were developed in the following areas of K-12 education: reading, mathematics, science and educational leadership. All four agendas addressed (1) standards and curriculum, (2) assessment of student performance, (3) recruitment and retention, (4) preparation, certification and professional development, (5) school conditions that support teaching and learning and (6) important topics unique to each area (e.g., vocabulary development among English Language learners, defining and measuring mathematical proficiency).

In Year 2 of the MURMSI project (2004-05), a web survey was conducted to prioritize the research agendas developed in Year 1 and obtain broader statewide input on research topics, particularly from K-12 educators in Florida, the group most underrepresented at stakeholder meetings. Four separate surveys in parallel format were available on the MURMSI web site ([www.murmsi.org](http://www.murmsi.org)): (1) reading, (2) mathematics, (3) science and (4) educational leadership. Invitations to participate were mailed and/or emailed to the following stakeholder groups. A total of 842 people responded to one or more of the surveys between April 26 and May 13, 2005. Research priorities listed on pages 9-17 of this RFP include topics ranked 1 or 2 by 66% of more respondents for each survey (reading, mathematics, science, educational leadership). A summary of quantitative survey results will be posted on the MURMSI web site ([www.murmsi.org](http://www.murmsi.org)) by May 31, 2005.

**Public Schools** (all public schools in Florida including elementary, middle, high, adult education, charter schools)

- Principals (with a request to forward the invitation to teachers at their schools)
- Teachers who are members of the Florida Education Association (FEA)

**School Districts – all 67**

- School Board members who are members of the Florida School Boards Association
- District Superintendents
- Directors of Instruction
- Content-specific contacts in districts (Reading First, language arts, math, science)

**Educational Consortia - staff:**

- North East Florida Education Consortium (NEFEC)
- Panhandle Area Educational Consortium (PAEC)
- Heartland Educational Consortium (HEC).

**Educational Associations – Executive leadership, boards of directors**

- Florida Association of District School Superintendents (FADSS)
- Florida Association of School Administrators (FASA)
- Florida Association of Elementary and Middle School Principals
- Florida Association of Instructional Supervisors and Administrators
- Florida Education Association (FEA)

**Florida Legislature**

- House Education Council – legislative members and staff director
- Senate Education Committee – legislative members and staff director
- House and Senate Appropriations – Education Committees - legislative members and staff director
- Council for Educational Policy Research and Improvement (CEPRI)

**State Board of Education** – 7 members

**Florida Department of Education (FDOE)**

- Commissioner's Office
- K-12 Chancellor's Office
- Just Read, Florida! Office
- Bureau Chiefs: School Improvement; Student Assistance; Educator Recruitment, Development and Retention; Exceptional Education and Student Services;
- Offices of Curriculum Support; Instructional Materials and Library Media; Multi-Cultural Student Language Education; Title I Programs and Academic Intervention Services; Equity and Access

**State Universities**

- Colleges of Education faculty
- Colleges of Arts and Sciences faculty (primary focus on biology, chemistry, physics, mathematics, psychology)

**Request for Proposals**

The FSU Learning Systems Institute is soliciting proposals for pilot research projects addressing one or more research topics ranked high priority by web survey respondents in spring 2005. Research projects will be funded by the third year (2005-06) grant award received from the U.S. Department of Education. Funding was reduced from \$1.49 million in Years 1 and 2 to \$992,000 in Year 3. Of the Year 3 award, up to \$626,750.00 will be awarded for research subcontracts at state universities in Florida, which include one or more K-12 partners. Both faculty and graduate students are eligible to apply.

**The anticipated start date is August 1, 2005; the anticipated ending date is July 18, 2006.**

Selected projects will be funded as fixed-price subcontracts with Florida State University with 100% federal funding from the USDOE grant award.

**Eligible applicants are faculty and graduate students in Florida's State University System (FAMU, FAU, FIU, FGCU, FSU, NCF, UCF, UF, UNF, USF, UWF).** Innovative approaches and collaboration among multidisciplinary researchers and stakeholders are encouraged. **Collaboration with one or more K-12 partners (public or private) is required.**

The purpose of the pilot research projects is to conduct high quality research in priority areas that can be completed within the next year. Pilot projects may be self-contained, one-year research projects or preliminary research studies that could be expanded or extended to longer-term research projects in future years, depending on continuation of FSU's USDOE grant or availability of funding from other sources.

A maximum of \$160,000.00 will be awarded for each faculty pilot research project; a maximum of \$3,100.00 will be awarded for each graduate student research project. Proposals must address one or more research priorities identified on pages 9-17 of this RFP.

Graduate student research projects must be conducted under the supervision of research faculty at a state university in Florida. Both master's and doctoral students enrolled in a degree program at a state university in Florida are eligible to apply. Graduate student research projects will be subject to the same application procedure and award criteria as all other awards made under the RFP. A Ph.D. research faculty member must be the Principal Investigator of record. Applications should include the two Title Pages, including the second page designated for graduate student research projects (see attached).

**Current and former MURMSI subcontractors are eligible to apply** for new or continuation projects as long as the proposal submitted in response to this RFP has a different scope of work. All projects - new and existing - will be evaluated and funded on their own merit.

**More than one proposal may be submitted by the same university.** Awards will be based on criteria specified in the “Review of Proposals” section (p. 7 of this RFP). For both projects (faculty and graduate student), preference will be given to proposals that address at-risk students, as defined by socio-economic status or other conditions and test the effectiveness of interventions using experimental or quasi-experimental designs.

Research methodologies should be as quantitative as possible; mixed methods (quantitative and qualitative) should be used when appropriate. Randomized experimental designs are encouraged when the effectiveness of interventions is being evaluated. All pilot research projects are expected to produce publishable results, specific recommendations for change, and realistic strategies for implementing them. Proposed strategies should be field-tested and their effectiveness documented quantitatively whenever possible.

### **Proposal Content**

A Title Page (attached) should be completed for each proposal and appear as the first page of each submittal. Please note that both first and second pages should be submitted for a graduate student proposal. On the Title Page, please indicate the research topic number(s) addressed by the proposal. For example, R.4.1, M.2.2, S.5.2, E.1.1. (see research priorities on pages 9-17).

The main proposal (excluding the Title Page, Budget Summary Form, and Appendix) should be no longer than 25 pages in length and printed in 11 point Times New Roman, single-spaced, with one-inch margins.

The proposal content should include:

#### **Abstract (maximum 1 page):**

- ◆ The specific research questions and why they are important
- ◆ K-12 and other partners involved in the project
- ◆ Summary of methodology
- ◆ Products to be produced and their expected benefit (for example, recommendations to improve the training of science teachers at colleges of education; instruments for assessing critical thinking/analysis in mathematics; improvements in instructional materials in high school mathematics; an action plan for recruiting better qualified teachers in middle school science education).

#### **Narrative (maximum 7 pages):**

- ◆ Research question(s) to be addressed
- ◆ A concise review of the literature providing a rationale for the research and its theoretical basis.
- ◆ The relevance and importance of findings to K-12 education in Florida
- ◆ Proposed action plan for applying research findings (Who will use the results of the research? What structure is in place to implement recommendations at the classroom, school, district or state level? How will research results be disseminated?)

**Description of Methodology (maximum 10 pages):**

- ◆ Research design
- ◆ Description of programs, strategies or other interventions, as applicable. Please include field-test results or any other quantitative information. Also, please describe methods for ensuring that interventions are implemented and how implementation will be monitored.
- ◆ Research sample and method of selection
- ◆ Data collection: sources, methods, measurement instruments
- ◆ Method(s) of data analysis

**Project Team (maximum 2 pages)**

- ◆ Members of the project team, including name, organization and a brief description of each person's role and qualifications. (Curriculum vitae should be included in the Appendix.)
- ◆ Sub-contractors, if any, who will perform any portion of the work. Please describe which portion(s) will be sub-contracted, and the names and addresses of potential sub-contractors.
- ◆ Letters indicating commitment to participate in the project are required for all K-12 partners. These letters should be included in the Appendix.

**Project Plan and Timeline (maximum 1 page)**

- ◆ Duration of the project (month/day/year to month/day/year). The anticipated start date is August 1, 2005; the ending date July 18, 2006.
- ◆ A list of major project activities/deliverables and anticipated dates of completion

**Summary of Deliverables (maximum 1 page)**

- List of reports or other work products that would be produced. (Semi-annual or quarterly reports will be required depending on the project payment schedule. A final report for each project will be due by July 18, 2006).

The final report must include the following at a minimum:

1. Executive Summary
2. Narrative: Research questions and their importance; how the research contributes to our existing body of knowledge and can improve practice in the K-12 environment
3. Summary of methodology used
4. Summary of findings
5. Recommendations
6. Action plan for implementing recommendations

**Project Budget Narrative (maximum 3 pages)**

Proposals should include a Budget Summary Form. A separate budget narrative (up to 3 pages) should provide justification for each line item.

The maximum amount of funding to be awarded per project is \$160,000 for faculty projects and \$3,100 for graduate student projects. The maximum request for equipment in a faculty proposal is \$5,000.00.

**Indirect costs up to 5% of total direct costs will be allowable. The budget narrative must include percent time commitment for each staff person assigned to the project.**

The FSU Learning Systems Institute may ask for more detailed budget information after projects are selected for funding.

**Appendix (not included in page limit):**

- Curriculum vitae for all members of the Project Team (maximum of 5 pages each).
- Descriptions of organizations involved (if not public institutions)
- Copies of measurement instruments to be used (if applicable).
- Letters of commitment from K-12 partner(s) (required)

**Submission deadline**

All proposals must be postmarked or hand delivered by Thursday, June 30, 2005 (5:00 p.m. E.S.T.). One original and 5 copies should be submitted to:

Christine Johnson  
MURMSI Project Manager  
Learning Systems Institute  
4600 C University Center  
Florida State University  
Tallahassee, FL 32306-2540

**Proposals sent by mail:**

Proposals received after the deadline will be considered for funding if the sender has proof of mailing, including:

- ◆ A dated shipping label, invoice or receipt from a commercial carrier, or
- ◆ Any other proof of mailing acceptable to Florida State University

**Receipt of Proposal:** Respondents will be notified by email of receipt of their proposal.

**Review of Proposals**

Proposals will be reviewed by a committee of education stakeholders, primarily faculty at state universities in Florida.

**Proposals should follow research standards specified in the federal Education Sciences Reform Act of 2002 (Attachment A), including “research designs and methods appropriate to the research question posed” and “experimental designs using random assignment, when feasible, and other research methodologies that allow for the strongest possible causal inferences when random assignment is not feasible.”**

Proposals will be evaluated according to the following criteria. The quality of the research methodology will be given the greatest weight.

- |                                       |                  |
|---------------------------------------|------------------|
| ◆ Significance of the research        | 10 points        |
| ◆ Quality of the research methodology | 20 points        |
| ◆ Qualifications of the research team | <u>10 points</u> |
| TOTAL POSSIBLE POINTS                 | 40 points        |

**Definitions:**

***Significance of the research:*** The importance of the research questions; the linkage of research questions to relevant theory; potential contribution to the body of knowledge in reading, mathematics, science education and/or educational leadership; potential to improve outcomes for at risk students.

***Quality of the research methodology:*** Quality and appropriateness of the research design; validity, reliability and appropriateness of data sources and measurement instruments; adequacy of methods of data analysis; feasibility, timeliness and quality of the project plan; clarity and strength of the program or intervention being evaluated (where applicable).

***Qualifications of the research team:*** Strength of collaboration with one or more K-12 partners in the conduct of the research and implementation of findings; training and experience of the Principal Investigator(s), project staff and proposed consultants or subcontractors.

**Expected notification of Award:** Friday, July 29, 2005. Selected proposals will be funded as fixed-price subcontracts with Florida State University. Funding for these subcontracts is dependent on the receipt, terms and conditions of the prime award from the U.S. Department of Education.

**Additional Contractor Responsibilities**

In addition to conducting the pilot and long-term research projects, researchers will be expected to participate in the following activities, as appropriate:

- Submit research findings for publication in a peer-reviewed research journal and a practitioner-oriented publication.
- ◆ Participate in periodic project status meetings and conference calls.
- ◆ Provide written status reports at specified milestones.
- ◆ Provide briefings on project results to key policymakers, practitioners or other potential users.
- ◆ Provide an electronic copy of the final report and a research brief for posting on the LSI/MURMSI website.

If additional travel is required, the FSU Learning Systems Institute will reimburse reasonable travel and lodging expenses incurred.

**Intent to submit**

Please email your intent to submit a proposal in response to this RFP to Christine Johnson, MURMSI Project Manager, at [cejohnso@mailer.fsu.edu](mailto:cejohnso@mailer.fsu.edu). Notification is not required, but will facilitate the RFP process.

**Questions about the RFP**

Please email all questions concerning this Request for Proposal to Christine Johnson, Learning Systems Institute, Florida State University, ([cejohnso@mailer.fsu.edu](mailto:cejohnso@mailer.fsu.edu)). Official responses in writing will be emailed to people who have emailed their intent to submit a proposal.

**MURMSI web site:** This RFP and additional information about the MURMSI project is available at <http://www.murmsi.org>.

# Reading Research Priorities

## R.1.0 Standards, Curriculum, and Instruction

### R.1.1 Teachers' understanding and use of reading standards to inform curriculum and instruction

For example,

- Teachers' knowledge and beliefs about the relationship between standards and instruction.
- Teachers' integration of reading standards into their instruction.
- Effective strategies to support teachers' integration of reading standards into their instruction.

### R.1.2 Instructional practices that improve reading achievement across grade levels

For example,

- Strategies for teaching comprehension that are most appropriate for certain ages and abilities (e.g. younger readers, poor readers, learning disabled readers).
- How strategies can reduce the time required for non-native versus native speakers to acquire academic and foundational vocabulary
- The effectiveness of teaching reading comprehension in content area classes, such as science and social studies.

## R.2.0 Assessment of Student Performance

### R.2.1 Teachers' knowledge and use of reading assessment to inform instruction

For example,

- Teachers' knowledge and beliefs concerning student assessments and how to use them appropriately to inform their reading instruction.
- Strategies for improving teachers' use of valid and reliable assessments of student learning in reading.
- Professional development strategies to help teachers use student assessment data to make instructional changes.

### R.2.2 Design of reading assessments that yield valid and fair inferences about student achievement

For example,

- Development of models of cognition and learning that can serve as the basis for assessment design.
- How student learning in reading is best measured, under what conditions and circumstances.
- New forms of assessment that are practical for use in classrooms and large-scale contexts.

### **R.3.0 Teacher Recruitment, Induction, and Retention**

#### **R.3.1 Strategies that increase the hiring and retention of reading teachers in elementary, middle, and high school**

For example,

- The causes of reading teacher turnover.
- Strategies that improve recruitment and retention of pre-service and beginning reading teachers.
- Strategies that increase the retention of effective practicing reading teachers.

### **R.4.0 Preparation, Certification and Professional Development of Teachers**

#### **R.4.1 Knowledge, competencies, and skills required by reading teachers**

For example,

- Teacher knowledge, competencies and skill sets that improve student achievement in reading.
- How the knowledge, competencies and skills required of reading teachers vary for different types of schools and students (e.g. high versus low percentage of at-risk students, urban versus rural).
- The relative effectiveness of various instructional delivery systems (e.g., field-based experiences, video-based cases, demonstration teaching) for helping teachers learn how to teach reading to students of different ages and in different contexts.

#### **R.4.2 Teacher Professional Development**

For example,

- Effective approaches for helping teachers learn and apply useful knowledge about reading instruction and assessment.
- Professional development strategies that support the continued improvement of reading instruction and ensure that every reading teacher is prepared to teach all students.
- How teacher expertise and effectiveness builds with professional development opportunities and experience.

### **R.5.0 School Conditions That Support Teaching and Learning**

#### **R.5.1 Creating schools as environments for learning**

For example,

- How schools and school districts can be transformed into organizations that continually improve their practices in reading instruction (continuous improvement model).
- How school facilities can be designed to support effective teaching and learning.
- How student engagement and interest in reading can be increased.

### **R.5.2 Creating working conditions that enhance teacher and student performance**

For example,

- How school structure, management, and organization of staff impacts teacher and student performance in reading.
- How facility design and conditions affect teaching and learning in reading.
- How non-instructional factors (e.g. absenteeism, disciplinary problems, parental involvement) affect student achievement in reading.

# Mathematics

## Research Priorities

### **M.1.0 Standards, Curriculum and Instruction**

#### **M.1.1 Instructional practices that improve mathematics achievement across grade levels**

For example,

- Conditions and contexts that typically accompany the success of instructional programs in mathematics.
- The impact of integrated mathematics learning-instruction models on student achievement in mathematics.
- Instructional materials and activities that improve understanding of mathematics concepts.

### **M.2.0 Assessment of Student Performance**

#### **M.2.1 Teachers' knowledge and use of assessment to inform mathematics instruction**

For example,

- Teachers' knowledge and beliefs concerning student assessments and how to use them appropriately to inform their mathematics instruction.
- Strategies for improving teachers' use of valid and reliable assessments of student learning in mathematics.
- Professional development strategies to help teachers use student assessment data to make instructional changes.

#### **M.2.2 Design of assessments that yield valid and fair inferences about students' mathematics achievement**

For example,

- Development of models of cognition and learning that can serve as the basis for assessment design.
- How student learning in mathematics is best measured, under what conditions and circumstances.
- New forms of assessment that are practical for use in classrooms and large-scale contexts.

### **M.3.0 Teacher Recruitment, Induction and Retention**

#### **M.3.1 Strategies that increase the hiring and retention of mathematics teachers in elementary, middle, and high school**

For example,

- The causes of mathematics teacher turnover.
- Strategies that improve recruitment and retention of pre-service and beginning mathematics teachers.
- Strategies that increase the retention of effective practicing mathematics teachers.

## **M.4.0 Preparation, Certification and Professional Development of Teachers**

### **M.4.1 Knowledge, competencies, and skills required by mathematics teachers**

For example,

- Teacher knowledge, competencies and skill sets that improve student achievement in mathematics.
- How the knowledge, competencies and skills required of mathematics teachers vary for different types of schools and students (e.g. high versus low percentage of at-risk students, urban versus rural).
- The relative effectiveness of various instructional delivery systems (e.g., field-based experiences, video-based cases, demonstration teaching) for helping teachers learn how to teach mathematics to students of different ages and in different contexts.

### **M.4.2 Teacher professional development**

For example,

- Effective approaches for helping teachers learn and apply useful knowledge about mathematics instruction and assessment.
- Professional development strategies that support the continued improvement of mathematics instruction and ensure that every mathematics teacher is prepared to teach all students.
- How teacher expertise and effectiveness builds with professional development opportunities and experience.

## **M.5.0 School Conditions That Support Teaching and Learning**

### **M.5.1 Creating schools as environments for mathematics learning**

For example,

- How schools and school districts can be transformed into organizations that continually improve their practices in mathematics instruction (continuous improvement model).
- How school facilities can be designed to support effective teaching and learning.
- How student engagement and interest in mathematics can be increased.

### **M.5.2 Creating working conditions that enhance teacher and student performance**

For example,

- How school structure, management, and organization of staff impacts teacher and student performance in mathematics.
- How facility design and conditions affect teaching and learning in mathematics.
- How non-instructional factors (e.g. absenteeism, disciplinary problems, parental involvement) affect student achievement in mathematics.

# **Science Research Priorities**

## **S.1.0 Standards, Curriculum and Instruction**

### **S.1.1 Instructional practices that improve science achievement across grade levels**

For example,

- Conditions and contexts that typically accompany the success of instructional programs in science.
- The impact of integrated science learning-instruction models on student achievement in science.
- Instructional materials and activities that improve understanding of scientific concepts.

## **S.2.0 Assessment of Student Performance**

### **S.2.1 Science teachers' knowledge and use of assessment to inform instruction**

For example,

- Teachers' knowledge and beliefs concerning student assessments and how to use them appropriately to inform their science instruction.
- Strategies for improving teachers' use of valid and reliable assessments of student learning in science.
- Professional development strategies to help teachers use student assessment data to make instructional changes.

### **S.2.2 Design of assessments that yield valid and fair inferences about students' science achievement**

For example,

- Development of models of cognition and learning that can serve as the basis for assessment design.
- How student learning in science is best measured, under what conditions and circumstances.
- New forms of assessment that are practical for use in classrooms and large-scale contexts.

## **S.3.0 Teacher Recruitment, Induction and Retention**

### **S.3.1 Strategies that increase the hiring and retention of science teachers in elementary, middle, and high school**

For example,

- The causes of science teacher turnover.
- Strategies that improve recruitment and retention of pre-service and beginning science teachers.
- Strategies that increase the retention of effective practicing science teachers.

#### **S.4.0 Preparation, Certification and Professional Development of Teachers**

##### **S.4.1 Knowledge, competencies, and skills required by science teachers**

For example,

- Teacher knowledge, competencies and skill sets that improve student achievement in science.
- How the knowledge, competencies and skills required of science teachers vary for different types of schools and students (e.g. high versus low percentage of at-risk students, urban versus rural).
- The relative effectiveness of various instructional delivery systems (e.g., field-based experiences, video-based cases, demonstration teaching) for helping teachers learn how to teach science to students of different ages and in different contexts.

#### **S.5.0 School Conditions That Support Teaching and Learning**

##### **S.5.1 Creating schools as environments for science learning**

For example,

- How schools and school districts can be transformed into organizations that continually improve their practices in science instruction (continuous improvement model).
- How school facilities can be designed to support effective teaching and learning.
- How student engagement and interest in science can be increased.

##### **S.5.2 Creating working conditions that enhance teacher and student performance**

For example,

- How school structure, management, and organization of staff impacts teacher and student performance in science.
- How facility design and conditions affect teaching and learning in science.
- How non-instructional factors (e.g. absenteeism, disciplinary problems, parental involvement) affect student achievement in science.

# **Educational Leadership Research Priorities**

## **E.1.0 Standards, Curriculum, and Instruction**

### **E.1.1 Educational leaders' understanding and use of standards to inform curriculum and instruction**

For example,

- Educational leaders' knowledge and beliefs about the relationship between standards and instruction.
- How educational leaders support the integration of standards into instruction at their schools.
- Effective strategies to support educational leaders' integration of standards into instruction at their schools.

### **E.1.2 Instructional leadership practices that improve student achievement across subjects and grade levels**

For example,

- How effective instructional leadership varies across school/district contexts (e.g., urban versus rural, different grade levels).
- The extent to which distributed leadership models impact student achievement in reading, math, and science.
- How leaders provide effective guidance in the selection of instructional materials and activities that improve student achievement in reading, math, and science.

## **E.2.0 Assessment of Student Performance**

### **E.2.1 How assessment affects student learning, teacher practice, and educational decision making**

For example,

- The impact of assessments on student learning and other student outcomes (e.g., retention, promotion, graduation).
- How teachers can be assisted in integrating new forms of assessment into their instructional practices.
- Effects of school structure (e.g., teacher collaboration, class size) on the feasibility of implementing new types of assessments and on their effectiveness.

## **E.3.0 Recruitment and Retention of Educational Leaders**

### **E.3.1 Strategies that increase the hiring and retention of effective educational leaders**

For example,

- The causes of attrition and turnover among educational leaders.
- Strategies that improve recruitment and retention of educational leaders.
- Strategies that increase the retention of effective practicing educational leaders.

## **E.4.0 Preparation, Certification and Professional Development of Educational Leaders**

### **E.4.1 Knowledge, competencies, and skills required by educational leaders**

For example,

- Knowledge, competencies and skill sets of educational leaders that improve curriculum, instruction and student performance.
- How the knowledge, competencies and skills required of educational leaders vary for different types of schools and school districts (e.g. high versus low percentage of at-risk students; urban versus rural).
- Differences and commonalities in knowledge and skills required for various leadership roles (i.e., elementary school principal, assistant superintendent, etc.).

### **E.4.2 Professional development for educational leaders**

For example,

- Effective approaches for helping educational leaders learn useful knowledge about educational leadership and reading/mathematics/science instruction and assessment.
- Professional development strategies that support the continued improvement of leadership skills among superintendents, principals and assistant principals.
- Effective strategies that superintendents, principals and assistant principals can use to increase classroom teacher effectiveness and adoption of research- based practices.

## **E.5.0 School Conditions That Support Teaching and Learning**

### **E.5.1 Creating schools as environments for learning**

For example,

- How educational leaders can transform schools and school districts into organizations that continually improve their effectiveness in reading, mathematics and science education (continuous improvement model).
- How school facilities can be designed to support effective teaching and learning.
- How interest and engagement in leading schools can be increased among educators and other professionals.

### **E.5.2 Creating working conditions that enhance teacher and student performance**

For example,

- How educational leaders can structure schools and organize staff to positively impact teacher and student performance.
- How facility design and conditions affect teaching and learning in reading, mathematics, and science.
- How non-instructional factors (e.g. absenteeism, disciplinary problems, parental involvement) affect student achievement in reading, mathematics, and science.

## APPENDIX A

### TITLE I – EDUCATION SCIENCES REFORM (H.R. 3801)

#### Sec. 102. DEFINITIONS

**(18) SCIENTIFICALLY BASED RESEARCH STANDARDS** – (A) The term “scientifically based research standards” means research standards that –

(i) apply rigorous, systematic, and objective methodology to obtain reliable and valid knowledge relevant to education activities and programs; and

(ii) present findings and make claims that are appropriate to and supported by the methods that have been employed.

(B) The term includes, appropriate to the research being conducted –

(i) employing systematic, empirical methods that draw on observation or experiment;

(ii) involving data analyses that are adequate to support the general findings;

(iii) relying on measurements or observational methods that provide reliable data;

(iv) making claims of causal relationships only in random assignment experiments or other designs (to the extent such designs substantially eliminate plausible competing explanations for the obtained results);

(v) ensuring that studies and methods are presented in sufficient detail and clarity to allow for replication or, at a minimum, to offer the opportunity to build systematically on the findings of the research;

(vi) obtaining acceptance by a peer-reviewed journal or approval by a panel of independent experts through a comparably rigorous, objective, and scientific review; and

(vii) using research designs and methods appropriate to the research question posed.

**(19) SCIENTIFICALLY VALID EDUCATION EVALUATION.** – The term “scientifically valid education evaluation” means an evaluation that –

(A) adheres to the highest possible standards of quality with respect to research design and statistical analysis;

(B) provides an adequate description of the programs evaluated and, to the extent possible, examines the relationship between program implementation and program impacts;

(C) provides an analysis of the results achieved by the program with respect to its projected effects;

(D) employs experimental designs using random assignment, when feasible, and other research methodologies that allow for the strongest possible causal inferences when random assignment is not feasible; and

(E) may study program implementation through a combination of scientifically valid and reliable methods.